

ABSTRACT

A catalytic trap disposed in an exhaust passage of an internal combustion engine which is operated with periodic alternations between lean and stoichiometric or rich conditions, for abatement of NO_x in an exhaust gas stream which is generated by the engine. The trap comprises a catalytic trap material and a refractory carrier member on which the catalytic trap material is disposed. The catalytic trap material comprises: (i) a refractory metal oxide support; (ii) a catalytic component effective for promoting the reduction of NO_x under stoichiometric or rich conditions; and (iii) a NO_x sorbent effective for adsorbing the NO_x under lean conditions and desorbing and reducing the NO_x to nitrogen under stoichiometric or rich conditions. The NO_x sorbent comprises a metal oxide selected from the group consisting of one or alkali metal oxides, alkaline earth metal oxides and mixtures of one or more alkali metal oxides and alkaline earth metal oxides. The manganese component is selected from the group consisting of: (1) a manganese oxide, (2) a mixed oxide of manganese and a transition metal and/or a rare earth metal, (3) a compound of an alkali metal and a manganese oxide, (4) a compound of an alkaline earth metal and a manganese oxide and (5) mixtures of the foregoing oxides and compounds.